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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/296,588	04/23/1999	MINHUA LU	YO998-532	8615

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EXAMINER	
QI, ZHI QIANG	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 01/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/296,588	LU ET AL.	
	Examiner	Art Unit	
	Mike Qi	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2004 and 01 July 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 5, 7-10, 12, 14-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,344,888 (Yasukawa) in view of US 5,250,451 (Chouan) or US 4,826,293 (Grinberg et al).

Claim 1-3, 7-10, 14-17, Yasukawa discloses (col.15, lines 25-52; col.6, line 48 – col.7, line 52; Figs. 7 and 1) that a reflection liquid crystal panel comprising a counter electrode (common electrode) composed of a transparent electrode (ITO) (33), i.e., a first-type electrode or a transmissive electrode; a reflective electrode (pixel electrode 14), i.e., a second-type electrode or a reflective electrode positioned opposite the transmissive electrode (the transmissive electrode is an opposite type of the reflective electrode); and a liquid crystal material (37) between the transmissive electrode (33) and the reflective electrode (14); and a passivation film (17) is formed on the entire pixel electrode (14) which is adjacent the liquid crystal material; and the passivation film (17) is composed of a silicon oxide film.

Because the amorphous layer (or the amorphous carbon layer) comprises a silicon oxide (see the claims 3, 10 and 17 of this application), such that Yasukawa discloses that an amorphous layer comprises of a silicon oxide film as the passivation

film. Yasukawa indicates (col.7, lines 20-23) that the use of a silicon oxide film as the passivation film (17) covering the pixel region prevents the significant change in a reflectance due to the variation of the film thickness and the wavelength of the light, such that preventing the display flickers. On the other hand, any material has conductivity. Using SiO_2 as the amorphous layer or the amorphous carbon layer as claimed in claims 1, 8 and 15 also have slight conductivity, so that the material also is a conducting (slight conductivity) material. The diamond-like conductive film has a very slight conductivity. Therefore, the material using SiO_2 met the claims 1, 8 and 15.

Yasukawa does not expressly disclose that the conducting amorphous layer has a resistivity between 10^4 and 10^{11} ohms-cm.

However, it was common and known in the art as a certain material having a certain resistivity, and that is the property of the material. Chouan discloses (col.2, line 59 – col.3, line 6) that the amorphous hydrogenated carbon layer has a resistivity between 10^{12} and 10^{14} ohms/cm, and that ensures a good electrical insulation. Grinberg also discloses (col.5, line 2 – line 29) that the resistivity of a partially conductive layer is preferably within a range of about 10^9–10^{11} ohms cm, and the partially conductive material has a considerably high resistivity.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to use a high resistivity material as claimed in claims 1-3, 7-10, 14-17 for obtaining a good electrical insulation.

Claims 5, 12 and 19, Yasukawa discloses (col.7, lines 37-38) that a polyimide alignment film is formed on the entire passivation film (17), i.e., a polyimide layer is

formed between the passivation film (as the amorphous layer) and the liquid crystal material.

3. Claims 4, 11 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasukawa and Chouan or Grinberg as applied to claims 1-3, 5, 7-10, 12, 14-17 and 19 above, and further in view of US 5,990,988 (Hanihara et al).

Claims 4, 11 and 18, it was common and known in the art as the silicon oxide film has a function to be an alignment film. Hanihara discloses (col.5, lines 52-53) that an alignment film (8) made of silicon oxide is formed on the electrode (7), such that the silicon oxide film has a function to be an alignment film. Because the amorphous layer comprises a silicon oxide, so that the amorphous layer made of silicon oxide has a unidirectional orientation matched to the liquid crystal material. Therefore, an alignment film as claimed in claims 4, 11 and 18 would have been at least obvious.

4. Claims 6, 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasukawa and Chouan or Grinberg as applied to claims 1-3, 5, 7-10, 12, 14-17 and 19 above, and further in view of Applicant admitted prior art.

Claims 6, 13 and 20, it was common and known in the art as that is a basic principle of the liquid crystal display in which a voltage between the pixel electrode and the common electrode varies the transparency of the liquid crystal material. As the Applicant admitted prior art discloses (col.3, lines 1-4 in the specification) that varying the voltage to the electrode (106) (the pixel electrode) controls the liquid crystal cell (111) such that different amount of light are transmitted across the liquid crystal display (different transparency of liquid crystal material), thus resulting in the display of a gray

scale of light. Therefore, a voltage between the transmissive electrode and the reflective electrode varies the transparency of the liquid crystal material as claimed in claims 6, 13 and 20 would have been at least obvious.

Response to Arguments

5. Applicant's arguments filed on Jan 13, 2003 have been fully considered but they are not persuasive.

Applicant's **only** arguments are as follows:

1) The reference Yasukawa does not teach or suggest "a conducting amorphous layer has a resistivity between 10^4 and 10^{11} ohms-cm" defined in all the independent claims.

Examiner's responses to Applicant's **only** arguments are as follows:

1) It was common and known in the art as a certain material having a certain resistivity, and that is the property of the material. Chouan discloses (col.2, line 59 – col.3, line 6) that the amorphous hydrogenated carbon layer has a resistivity between 10^{12} and 10^{14} ohms/cm, and that ensures a good electrical insulation. Grinberg also discloses (col.5, line 2 – line 29) that the resistivity of a partially conductive layer is preferably within a range of about 10^9–10^{11} ohms cm, and the partially conductive material has a considerably high resistivity.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (703) 308-6213.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Mike Qi
January 14, 2004

ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800